

REMARKS

Claims 1-20 have been canceled, and claims 21, 34, and 44 have been amended. Thus, claims 21 - 57 remain pending in the present application. No new matter has been added. In view of the following remarks, it is respectfully submitted that all of the presently pending claims are in condition for allowance.

Claims 21 - 22, 24 - 34, 36 - 46 and 48 - 57 stand rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 6,955,677 to Dahners ("Dahners"). 9/18/08 Office Action, p. 2.

Claim 21 has been amended to recite that the non-thread protrusions exhibit the same pitch with the threads on a bone screw head even before the bone screw head is inserted into the opening containing the protrusions. As explained in the Amendment dated September 10, 2007, Applicant established that the specification supports the pitch of the protrusions being the same as the pitch of the threads of the bone screw head. That this sameness exists prior to the insertion of the bone screw head is shown by the fact that the pitch of the protrusions is not altered in response to the insertion of the bone screw head. If the bone screw head achieves a locking engagement with the non-thread protrusions without altering the pitch of the non-thread protrusions, then it follows that the non-thread protrusions have the same pitch as the threads of the bone screw head even prior to the insertion of the bone screw head into the opening containing the protrusions. This is shown by comparing Figure 6, which shows the opening that contains the protrusions before a screw is inserted therein, with Figures 7-9, which shows that after the screw has been inserted the pitch of the protrusions was not changed.

Dahners teaches that "a tappable contact region, generally designated 85, is disposed on each inside surface 81 of fastener receiving member 60." Column 7, lines 1-3. Dahners further states the following:

The term "tappable" is used herein to denote that contact region 85 is structured such that it can be tapped by second thread 51 of head section 40 of fastener 10 in response to forceful insertion and rotation of head section 40 into the material of contact region 85. As described below in connection with FIG. 3, ***this enables the user to manipulate second thread 51 of head section 40 to form, in effect, a custom internal thread in contact region 85*** sufficient to maintain fastener 10 at

an arbitrary orientation in relation to receiving member 60 selected by the user. In FIG. 3, this orientation is represented by an insertion angle IA, defined between fastener axis FA and aperture axis AA. In accordance with the invention, insertion angle IA can range from 0 to 90 degrees wherein at 0 degrees fastener axis FA coincides with aperture axis AA. Due to the relative positions of aperture A, second outer surface 64 and fastener 10, insertion angle IA in practice will be less than 90 degrees.

Column 7, lines 3-20 (emphasis added). According to Dahnert, the essential feature of the tappability of region 85 is that the density of protrusions 87 be high enough to form a matrix of protrusions 87 that collectively produce a tappable region 85. Specifically, “the density of protrusions 87 over the area of inside surface 81, and the size of individual protrusions 87, are not limited by the invention, so long as the matrix formed on inside surface 81 renders contact region 85 tappable.” Column 7, lines 38-42. Thus, in order to be tappable, the contact region 85 in Dahnert must meet a minimum density threshold. When this threshold is met, a screw driven against the contact region 85 will form a thread in the material of the protrusions 87 that did not exist before the insertion of the screw. Specifically, “[w]ith the use of either contact region 85 or contact region 105, the driving of second thread 51 [of a bone screw] through aperture A in effect forms a custom internal thread in contact region 85 or 105 that is complimentary to the orientation and structure of second thread 51 and turns in relation to fastener axis FA.” Column 10, lines 3-8 (insertion added). Thus, before the insertion of a screw into the Dahnert through-hole, the pitch between the non-thread protrusions of the contact region 85 are not matched to those of the bone screw head. Only after having the threads of the bone screw head be driven into the material of the contact region 85 could the matrix of protrusions be transformed to exhibit an internal thread with a pitch that is the same as that of the threads of the bone head screw. The present invention does not involve any such creation of a “custom internal thread” by a screw into a material of an opening; instead, the present invention employs protrusions that are manufactured to exhibit the same pitch as that of a bone screw before the bone screw is inserted into the opening containing the protrusions. Accordingly, withdrawal of this rejection is requested.

Notwithstanding the above, Applicant submits the following additional reasons in support of the patentability of claims 25, 38, 49, which recite the number of protrusions as being between 2 and 30. The Examiner asserts that these claims involve nothing more than routine optimization. Applicant disagrees because the claimed number of protrusions is too few to achieve the minimum density necessary to produce the tappability that Dahnert regards as

essential. According to Dahners, the “density of protrusions...are not limited by the invention, so long as the matrix formed on the inside surface 81 renders contact region 85 tappable.” Column 7, lines 38-42. Thus, the number of protrusions cannot be so few that they collectively fail to serve as a tappable contact region. Figures 2B-2D of Dahners, for example, show a matrix of protrusions that exceeds the claimed range. Since the density of protrusions that Dahners regards as necessary for achieving a tappable contact region exceeds the density that results when 2 to 30 protrusions are used, it is not the case that one of ordinary skill in the art would modify Dahners in such a way as to destroy the very tappareability that Dahners regards as the essence of his invention. Accordingly, for these additional reasons, claims 25, 38, and 49 are patentable over Dahners.

Claims 23, 35 and 47 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Dahners in view of U.S. Patent No. 5,360,448 to Thramann (“Thramann”). *9/18/08 Office Action*, p. 3.

It is respectfully submitted that Thramann does not cure the deficiency of Dahners as discussed above in regard to independent claims 21, 34 and 44. Since claims 23, 35 and 47 depend from and include all of the limitations of claims 21, 34 and 44, respectively, it is respectfully submitted that these claims are also allowable and that the rejection of these claims should be withdrawn.

It is therefore respectfully submitted that all of the presently pending claims are allowable. All issues raised by the Examiner having been addressed, an early and favorable action on the merits is earnestly solicited.

Respectfully submitted,

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